

Abstract of the Disclosure

An InGaAlAs-based buried type laser is expected to improve properties of the device, but generates defects at a regrowth interface and is difficult to realize a long-term reliability necessary for optical communication, due to inclusion of Al in an active layer. The present inventors have studied in detail the relationship between crystals of the regrowth layers and Al composition ratios, and realized the improvement of device properties and the long-term reliability through the use of an Al composition ratio-reduced tensile strained quantum well layer.